

Advanced Algebra
Solving Quadratic Equations

Name _____
Hour _____

Solve by any method (factoring, square root method, or completing the square). *or Quad Formula*

1. $2x^2 + x - 28 = 0$

2. $x^2 + 12 = 0$

3. $6x^2 = 12x$

4. $3x^2 + 4 = 8x$

5. $x^2 = -6x - 41$

6. $4x^2 + 4x - 24 = 0$

7. $(x + 3)^2 + 8 = 36$

8. $2x^2 - 10 = 26$

9. $x^2 + 11x + 10 = 0$

10. $x^2 - 6x = -8$

11. $x^2 + 12x + 4 = 0$

12. $2x^2 - x = 6$

13. $3x^2 - 6 = 18$

14. $6x - 3x^2 = -12$

15. $5x^2 - 125x = 0$

$$16. x^2 - 169 = 0$$

$$17. x^2 - 4x + 5 = 0$$

$$18. x^2 - 3x = 2$$

$$19. 4x^2 = 20x + 56$$

$$20. 2(x - 1)^2 = 64$$

$$21. x^2 + 4x = 0$$

$$22. x^2 + 6x = -22$$

$$23. 2x^2 + 6x = -4$$

$$24. x^2 - 5x = -6$$

Advanced Algebra
Solving Quadratic Equations

Name Key
Hour _____

Solve by any method (factoring, square root method, or completing the square). or Quad Formula

Not
✓

1. $2x^2 + x - 28 = 0$

$(2x-7)(x+4)=0$

$x=3.5$ $x=-4$

Not Factor or Comp. □

2. $x^2 + 12 = 0$

$x^2 = -12$

$x = \pm\sqrt{-12}$

$x = \pm 2i\sqrt{3}$

Not
✓

3. $6x^2 = 12x$

$6x^2 - 12x = 0$

$6x(x-2)=0$

$x=0$ $x=2$

Not
✓

4. $3x^2 + 4 = 8x$

$3x^2 - 8x + 4 = 0$

$(3x-2)(x-2)=0$

$x=2/3$ $x=2$

Not Factor or ✓

5. $x^2 = -6x - 41$

$x^2 + 6x + 41 = 0$

$(x+3)^2 = -32$

$x+3 = \pm 4i\sqrt{2}$

$x = -3 \pm 4i\sqrt{2}$

Not
✓

6. $4x^2 + 4x - 24 = 0$

$4(x^2 + x - 6) = 0$

$4(x+3)(x-2) = 0$

$x=-3$ $x=2$

Not Factor

7. $(x+3)^2 + 8 = 36$

$(x+3)^2 = 28$

$x+3 = \pm 2\sqrt{7}$

$x = -3 \pm 2\sqrt{7}$

Not Factor or
Comp. □

8. $2x^2 - 10 = 26$

$2x^2 = 36$

$x^2 = 18$

$x = \pm 3\sqrt{2}$

Not
✓

9. $x^2 + 11x + 10 = 0$

$(x+10)(x+1) = 0$

$x=-10$ $x=-1$

Not
✓

10. $x^2 - 6x = -8$

$x^2 - 6x + 8 = 0$

$(x-4)(x-2) = 0$

$x=4$ $x=2$

Not
✓

Not ✓ or Factor

11. $x^2 + 12x + 4 = 0$

$x^2 + 12x + 36 = -4 + 36$

$(x+6)^2 = 32$

$x+6 = \pm 4\sqrt{2}$

$x = -6 \pm 4\sqrt{2}$

12. $2x^2 - x = 6$

$2x^2 - x - 6 = 0$

$(2x+3)(x-2) = 0$

$x=-3/2$ $x=2$

Not
✓

13. $3x^2 - 6 = 18$

$3x^2 = 24$

$x^2 = 8$

$x = \pm 2\sqrt{2}$

Not Factor or
Comp. □

Not Factor or ✓

14. $6x - 3x^2 = -12$

$3x^2 - 6x - 12 = 0$

$3(x^2 - 2x - 4) = 0$

$x^2 - 2x - 4 = 0$

$x^2 - 2x + 1 = 4 + 1$

15. $5x^2 - 125x = 0$

$(x-1)^2 = 5$

$x-1 = \pm\sqrt{5}$

$x = 1 \pm \sqrt{5}$

$5x(x-25) = 0$

$x=0$ $x=25$

Not Comp

$$16. x^2 - 169 = 0$$

$$x^2 = 169$$

$$x = \pm 13$$

Not Factor or

$$17. x^2 - 4x + 5 = 0$$

$$x^2 - 4x = -5$$

$$x^2 - 4x + 4 = -5 + 4$$

$$(x-2)^2 = -1$$

$$x-2 = \pm i$$

$$x = 2 \pm i$$

$$20. 2(x-1)^2 = 64$$

$$(x-1)^2 = 32$$

$$x-1 = \pm 4\sqrt{2}$$

$$x = 1 \pm 4\sqrt{2}$$

Not Factor or

Not Factor or

$$18. x^2 - 3x = 2 \quad x^2 - 3x - 2 = 0$$

$$x = \frac{(-3) \pm \sqrt{(-3)^2 - 4(1)(-2)}}{2(1)}$$

$$x = \frac{3 \pm \sqrt{9+8}}{2}$$

$$x = \frac{3 \pm \sqrt{17}}{2}$$

$$21. x^2 + 4x = 0$$

$$x(x+4) = 0$$

$$x = 0 \quad x = -4$$

Not

$$x^2 - 3x + 2.25 = 2 + 2.25$$

$$(x-1.5)^2 = 4.25$$

$$(x-3/2)^2 = \frac{17}{4}$$

$$x-3/2 = \pm \sqrt{\frac{17}{4}}$$

$$x-3/2 = \pm \frac{\sqrt{17}}{2}$$

$$x = \frac{3}{2} \pm \frac{\sqrt{17}}{2}$$

Not

$$19. 4x^2 = 20x + 56$$

$$4x^2 - 20x - 56 = 0$$

$$4(x^2 - 5x - 14) = 0$$

$$4(x-7)(x+2) = 0$$

$$x = 7 \quad x = -2$$

$$22. x^2 + 6x = -22$$

$$x^2 + 6x + 9 = -22 + 9$$

$$(x+3)^2 = -13$$

$$x+3 = \pm i\sqrt{13}$$

$$x = -3 \pm i\sqrt{13}$$

Not Factor or

$$23. 2x^2 + 6x = -4$$

$$2x^2 + 6x + 4 = 0$$

$$2(x^2 + 3x + 2) = 0$$

$$2(x+2)(x+1) = 0$$

$$x = -2 \quad x = -1$$

Not

$$24. x^2 - 5x = -6$$

$$x^2 - 5x + 6 = 0$$

$$(x-3)(x-2) = 0$$

$$x = 3 \quad x = 2$$

Not